

MDF-MU549DHL-PA

# Biomedical ECO Freezer, -40°C

MDF-MU549DHL-PA  
16.9 cu.ft. | 479 L



This -40°C Biomedical ECO Dual Chamber Freezer is designed for storage of enzymes, vaccines, pharmaceutical products and other biomedical materials at uniform temperatures. High performance refrigeration systems provide responsive cooling for real world usage. A manual defrost function eliminates temperature fluctuations during normal usage. Each chamber operates over a range of -20°C to -40°C, with separate set points in 1°C increments to meet a wide range of applications.

## Natural Refrigerants and Inverter Technology

Naturally occurring hydrocarbon [HC] refrigerants have minimal effect on the environment and are compliant with environmental legislation for climate control. Combined with inverter technology, these refrigerants also provide more efficient cooling without compromising cooling performance, ambient tolerance and recovery speeds following door openings.

## Smart Cabinet Design

Two door access allows more flexibility for secure sharing among labs. Each chamber includes three wire shelves, two adjustable and one fixed. Optional open top bins can be added to hold common 2" or 3" freezer boxes, as well as miscellaneous packaging. High density CFC-free and low GWP foamed-in-place insulation creates a temperature resistant wall structure. Doors are lockable. Painted steel interior surfaces simplify cleaning.

## ENERGY STAR® Certified \*1)

Uniform temperatures are maintained throughout the storage chamber through unique ICA control of the refrigeration system. This ENERGY STAR(R) certified high-performance freezer is ideal for the storage of biologics, enzymes, culture media, vaccines, lab specimens, and other temperature-sensitive materials. It features separate individually controlled top and bottom chambers between -20°C and -40°C.



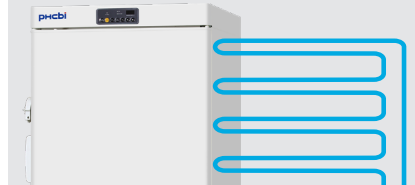
## Energy Efficient Performance

Natural refrigerant, high performance inverter compressors, DC condenser fans and integrated electronic controls combine to manage overall performance, protect stored product and lower operating costs by up to 28%\* compared to conventional models. Performance is rated at 115V, AC, ambient temperature 40°C, with a wide tolerance for high ambient temperatures.



## Microprocessor Controller and Alarms

A microprocessor-based temperature control system with LED display maintains accurate setpoint temperature within ±1°C from -20°C to -40°C. Each chamber can be controlled independently. Temperature display for each chamber can be shown simultaneously or individually. Audible and visual alarms alert for setpoint deviations or power loss.



## High Performance Refrigeration

The refrigeration systems and variable speed inverter compressor adjust cooling based on temperature setpoint, door openings, ambient temperature and heat intrusion through the composite insulated walls. Strategic integration of embedded cooling coils creates a uniform cold-wall surface for fast response at temperatures as low as -40°C top to bottom.

\*Compared to conventional models. Power source: 115V 60Hz, Ambient temperature 30°



Model MDF-MU549DHL-PA shown with optional storage bins.

**Product Protection**  
The Model MDF-MU549DHL-PA -40°C upright Biomedical ECO freezer with two independent chambers offers stable temperature and utility value when cabinet sharing is desired.

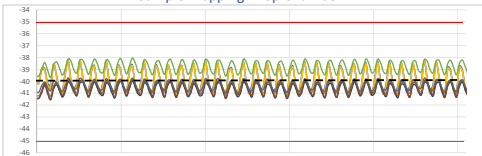
**Flexibility and Convenience**

Optional large open top bins (six per chamber) allow for storage of 2" and 3" high freezer inventory boxes or containers. The one-handed door latch operation permits easy opening and closing. Each door features a latch lock and an optional padlock can be installed for added security. Easy-to-clean painted steel interior and exterior.

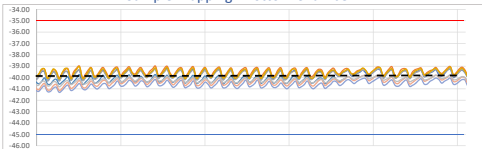
**Uniformity Data**

As interior air temperature stabilizes at the desired set-point, large mass storage volume assures close temperature uniformity at all locations within the insulated cabinet.

Sample Mapping - Top Chamber

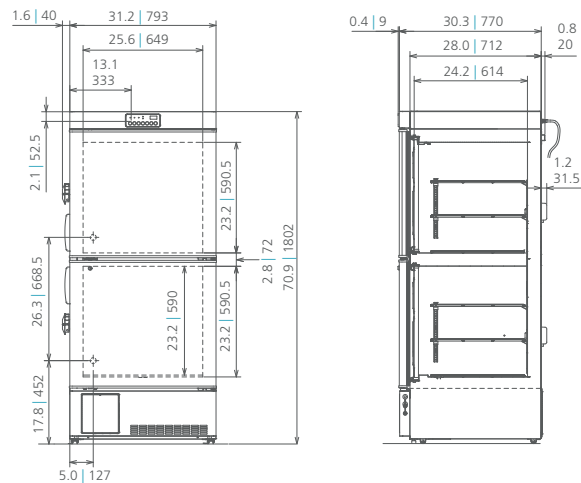


Sample Mapping - Bottom Chamber



**Dimensions**

Unit : inch | mm



Model Number		MDF-MU549DHL-PA
Exterior Dimensions (W x D x H) <sup>1)</sup>	inches   mm	31.2 x 30.3 x 70.9   793 x 770 x 1802
Interior Dimensions (W x D x H)	inches   mm	25.6 x 24.2 x 23.6   649 x 614 x 600 (each chamber)
Volume	cu. ft.   liters	16.9   479 (total) (8.46   239.5 each chamber)
Net Weight	lbs   kg	363.8   165
Capacity (2" boxes) Bin   Freezer	qty	24   144 per chamber (288 total freezer)
Capacity (3" boxes) Bin   Freezer	qty	16   96 per chamber (192 total freezer)
Bin Capacity	qty	6 per chamber (12 total)
Performance <sup>2) 3) 4)</sup>		
Temperature Control Range Top Chamber	°C	-20 to -40 in 1°C Increments
Temperature Control Range Bottom	°C	-20 to -40 in 1°C Increments
Uniformity	±	4
Power Consumption	kWh/day	3.58
BTU Nominal	Per hour	717
Noise Level <sup>5)</sup>	dB(A)	42
Control		
Controller		Microprocessor, touchpad data entry, password protected
Display		LED
Temperature Sensor		Thermistor (one for each chamber)
Refrigeration		
Refrigeration System		Cold wall
Compressor	W	(2) 400 (variable speed- inverter driven)
Refrigerant		CFC-free R-290 - 60 grams
Defrost		Manual
Insulation Material		Rigid polyurethane, foamed-in-place, low GWP
Insulation Thickness	inches   mm	2.8   70
Construction		
Exterior and Interior Material		Painted steel
Door	qty	2
Outer Door - Key Lock	qty	1 (one lock for each door)
Additional Door Lock	qty	2 (Door latch with provision for padlock)
Wire Shelves, Vinyl Coated	qty	6 (4 adjustable)
Shelf Dimension (W x D)	inches   mm	24.6 x 20.1   624 x 510
Max. Load per Shelf	lbs   kg	66.1   30
Max. Load - Total Freezer	lbs   kg	198.4   90 per chamber (396.8   180 total freezer)
Access Port	qty	2 standard (one each chamber)
Access Port Position		Back wall, left hand corner (facing unit)
Access Port Diameter	inches   mm	1.2   30
Casters	qty	4
Leveling Feet		2 (on front of base)
Alarms (V=Visual, B=Buzzer, R=Remote Alarm)		
Power Failure		V-B-R
High Temperature		V-B-R
Low Temperature		V-B-R
Electrical		
Power Supply		115V, 60Hz, 1Ø, NEMA 5-15R, requires NEMA 5-15R receptacle 8 ft power cord
Max Amps		3.7
Options		
Storage Bin <sup>6)</sup>	Sold in sets of 2	MDF-055C-PW (6 sets per cabinet maximum)
Circular Type Two Pen	6", 7 Day Circular	MTR-G85A-PA w/ fixing plate MPR-S7-PW
Chart Paper	55 charts per box	RP-G85-PW
Red Ink Pen	pack of 2	R252
Optional Communication System		
Wireless, Cloud-Based, Automatic Data Management		LabSVIFT Gen 2   LabAlert Monitoring System *
4-20mA output module		MTR-420MA-PA   MTR420MAL- Loop Powered *   MTR420MAC - Equipment Powered*
Certifications and Warranty		
Certification		ENERGY STAR®   QPS Listed
Warranty <sup>7)</sup>		3 years and parts and labor

<sup>1)</sup> External dimensions of main cabinet only. Excluding the door handle and other external projections  
<sup>2)</sup> The data reflects performance metrics rather than official product specifications. Results from technical data sheet tests should not be used to establish regulatory parameters for specific customer applications.  
<sup>3)</sup> The performance of the freezer will depend on factors such as the volume of customer products, storage configuration, selected options, operating conditions, test methods, and adherence to recommended maintenance practices.  
<sup>4)</sup> Ongoing product improvements may lead to changes or omissions in this technical data sheet without prior notice. PHC Corporation of North America disclaims responsibility for any damage, injury, loss, or expenses arising from the misuse of the information provided.  
<sup>5)</sup> Nominal value- Background noise 20 dB(A)  
<sup>6)</sup> Optional Bin, interior base dimensions 11" (280 mm) W x 21.65" (550 mm) F to B, height 6.2" (157.5 mm) H  
<sup>7)</sup> Current warranty offered at time of printing and may be subject to change; US and Canada only.  
 \* Manufactured by others.



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